



Tanks Focus Area

FY02 Program

**Industry Partnerships for Environmental Science
and Technology Conference**

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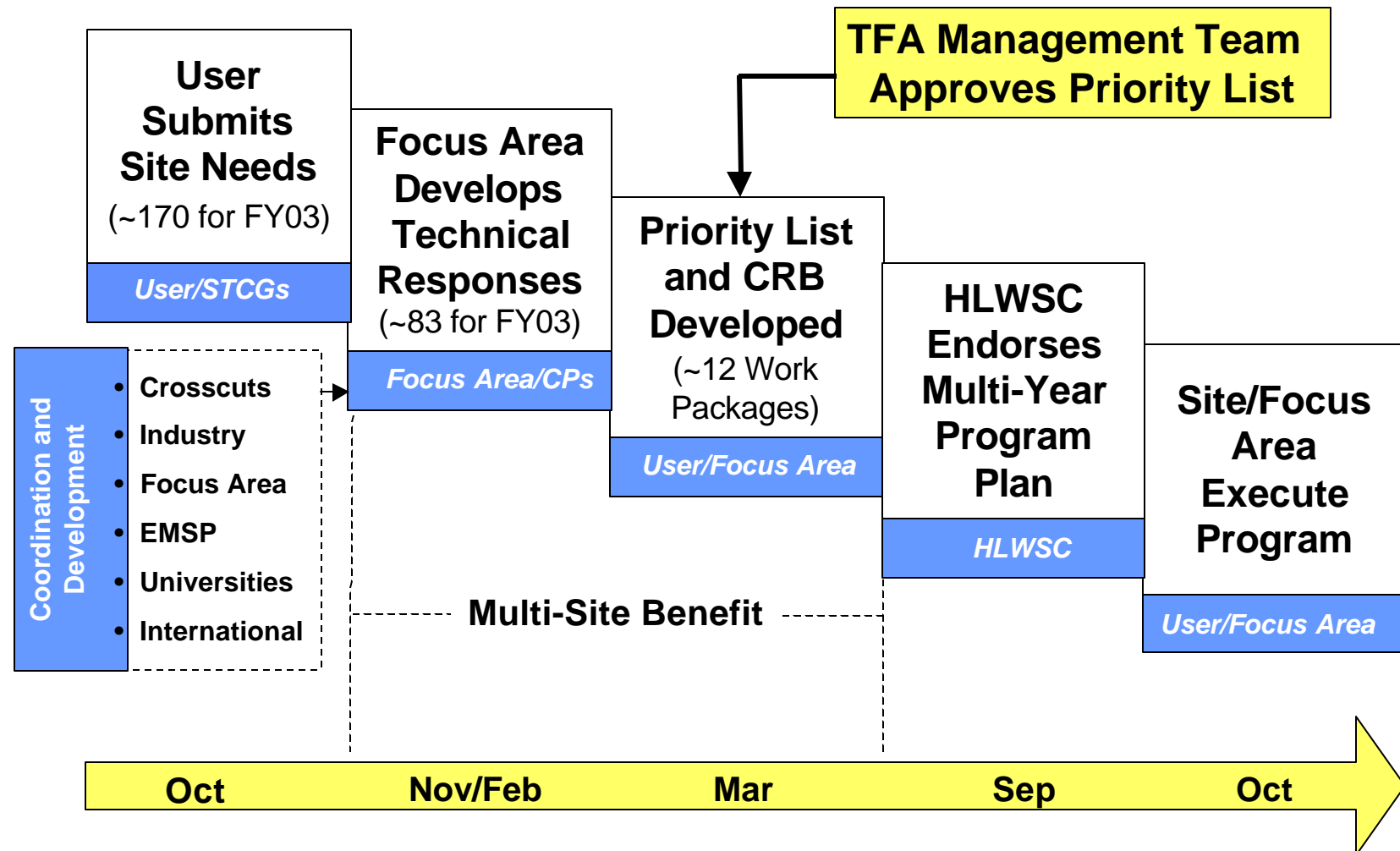
Budget Update



FY00	FY01	FY02 _(Target)	FY03 _(Target)
\$45M	\$55M	\$59M	\$???

- Large uncertainty with budget
- FY02 budget currently under continuing resolution
- FY03 CRB was developed to meet both user needs and program goals (e.g., Applied Research, Strategic Investments, Deployments) and CRB is currently under review.

TFA Planning Process



Prioritization Criteria and Process



**Technical
Responses**

- *Multi-site benefit?*
- *User co-funding?*
- *What is priority/risk?*
- *Part of site baseline?*
- *Cost savings/avoidance?*
- *Regulatory impacts?*
- *Implementation potential?*

**Ranking
by Users**

**TFA
Funding
Priority**

Hanford Tanks Needs to Responses



TFA FY01 Technical Responses by Site Need

23-Mar-01

Site Need # Need Title

TFA Response# Response

Site: Hanford

RL-DD082 Retrieval of Waste Heel from Vault Tanks at 340 Facility

B382 Horizontal and Small Tank Sludge Mixing and Retrieval

RL-WT01 Technetium-99 Analysis in Hanford Tank Waste and Contaminated Tank Farm Areas

B264 Improve Waste Analytical Methods

RL-WT04 Double-Shell Tank Corrosion Monitoring

B143 HLW Tank Corrosion Control and Monitoring

RL-WT05 Remote Inspection of High-Level Waste Single-Shell Tanks (SSTs)

B175 Tank Integrity Inspection Techniques

RL-WT09 Representative Sampling and Associated Analysis to Support Operations and Disposal

B246 Tank Waste Sampling

RL-WT015 Standard Method for Determining Waste Form Release Rate

B748 Testing and Prediction of Long-Term Waste Glass Performance

RL-WT016 Glass Monolith Surface Area

B749 Glass Monolith Surface Area

RL-WT017 Long-Life Waste Isolation Surface Barrier

B950 Barriers for Tank/Disposal Facility Closure

Integrated Priority List



TFA IPL#	MYTR #	Multi-Year Technical Response (MYTR) Title	Hanford Benefit \$K	FY02 \$K	FY02 \$K Sum	FY03 \$K	FY03 \$K Sum
0	B1S1	Pre-Closure Interim Tank Maintenance		250	250	0	0
0	B3S2	SST Retrieval from Potential Leaking Tanks	243	243	493	400	400
0	B5S1	Removal of Key Non-Radioactive Elements from Tank Waste	100	200	693	0	400
0	B5S2	Selective Chemical Dissolution of Tank Heels to Improve Retrieval		100	793	200	600
0	B7S2	New Melter Technology	120	520	1313	0	600
0	B9S1	Controlling Radionuclide Source Terms Important to Tank Closure		0	1313	300	900
0	B9S2	Closure of Ancillary Piping and Equipment		0	1313	300	1200
0	B570	Salt Processing Project		6800	8113	3000	4200
1	B143	HLW Tank Corrosion Control and Monitoring	120	675	8788	185	4385
2	B175	Tank Integrity Inspection Techniques	1040	1605	10393	2285	6670
3	B361	Heel Retrieval from Obstructed Tanks		750	11143	200	6870
4	B362	Low Liquid Volume Saltcake Retrieval	1200	1650	12793	1350	8220
5	B554	Tank Waste Chemistry	2450	3020	15813	3090	11310
6	B768	Specify and Enhance Design of HLW Glass Melters	0	2890	18703	3730	15040
7	B773	Improve Waste Loading in HLW and LLW Glasses	445	1880	20583	1995	17035
8	B157	Tank Leak Mitigation	300	900	21483	1725	18760
9	B363	Chemical Cleaning of Tanks		425	21908	650	19410
10	B367	Unobstructed Tank Heel Retrieval	1140	1390	23298	1775	21185
11	B555	Sludge Washing and Dissolution	650	1588	24886	1200	22385
12	B709	Waste Treatment Process Flowsheet Model		965	25851	1115	23500
13	B769	Conditioning of HLW for Immobilization	145	265	26116	580	24080
14	B777	Remote Disassembly of HLW Melters and Other Processing Equipment		1125	27241	875	24955
15	B566	Waste Chemistry During Evaporation	285	1385	28626	1300	26255
16	B584	Cross-Flow Filtration	85	250	28876	910	27165
17	B359	Waste Mobilization and Mixing	75	950	29826	1575	28740
18	B923	Enhanced Grout Formulations for Tank Closure		575	30401	0	28740
19	B382	Horizontal and Small Tank Sludge Mixing and Retrieval		400	30801	300	29040
20	B719	Conditioning and Immobilization of Low-Activity Waste		725	31526	1265	30305
21	B203	Residual Waste Sampling		300	31826	550	30855
22	B508	Decon and Filter Leach Processes Waste Volume Reduction		355	32181	500	31355
23	B171	Alternative Air Filtration Technology		720	32901	480	31835
24	B376	Pipeline Plugging Prevention, Unplugging, and Cleaning	900	1825	34726	1125	32960
25	B311	Long-Length Equipment Handling		0	34726	300	33260

TFA IPL# - Priority as determine by TFA Management Team.

Hanford Benefit – approximate portion of FY02 \$K total MYTR funding addressing Hanford needs

Integrated Priority List (continued)



TFA IPL#	MYTR #	Multi-Year Technical Response (MYTR) Title	Hanford Benefit \$K	FY02 \$K	FY02 \$K Sum	FY03 \$K	FY03 \$K Sum
26	B352	Remote Systems for Pit Operations and Maintenance	200	200	34926	850	34110
27	B722	HLW Process Offgas Treatment	40	0	34926	560	34670
28	B521	Acid-Side Radionuclide Separations		41	34967	1060	35730
29	B156	Tank Leak Detection	580	0	34967	250	35980
30	B588	Leaching and Treatment of Technetium for Tank Closure	100	0	34967	300	36280
31	B232	Dry Materials Sampling		0	34967	500	36780
32	B201	Sludge Mapping and Volume Estimates		0	34967	102	36882
33	B202	In-Situ Waste Characterization		0	34967	0	36882
34	B365	Waste Transfer Pumping	25	0	34967	0	36882
35	B748	Testing and Prediction of Long-Term Waste Glass Performance	165	165	35132	0	36882
36	B532	Calcine Dissolution Solubility and Kinetics		0	35132	0	36882
37	B246	Tank Waste Sampling	940	0	35132	0	36882
38	B278	Slurry Transfer and Tank Waste Mixing Monitors		350	35482	0	36882
39	B279	Two-Phase Liquid Detection	400	0	35482	0	36882
40	B972	Alternative HLW Canister Decontamination Techniques		0	35482	0	36882
41	B374	Remote Technologies for Process Cell Operations and Maintenance		0	35482	0	36882
42	B501	INEEL Integrated Radionuclide Separations Process		300	35782	0	36882
43	B176	Piping Integrity Inspection Techniques		0	35782	0	36882
44	B542	Antifoam Agents for Waste Evaporation	150	0	35782	0	36882
45	B303	Waste Retrieval from Confined Spaces		0	35782	0	36882
46	B205	Continuous Emissions Monitor for Offgas Analysis		0	35782	0	36882
47	B514	Removal of Chloride from Waste Solutions		0	35782	0	36882
48	B511	Sodium Salt Removal for Waste Volume Reduction	500	0	35782	0	36882
49	B335	Transfer Line and Piping Improvements		0	35782	0	36882
50	B338	Containers for Waste Slurry Transport	20	0	35782	0	36882
51	B191	Aerodynamic Greenhouses		0	35782	0	36882
52	B387	Improved Mixing Methods	205	0	35782	0	36882
53	B310	Tank Decontamination and Dismantling		0	35782	0	36882
54	B144	Tank Materials Properties		0	35782	0	36882
55	B264	Improve Waste Analytical Methods	170	0	35782	0	36882

Hanford Benefit – approximate portion of FY02 \$K total MYTR funding addressing Hanford needs. If ‘FY02 \$K’ = 0, MYTR was below TFA funding line and ‘Hanford Benefit \$K’ represents proposed benefit amount if the MYTR had been fully funded.

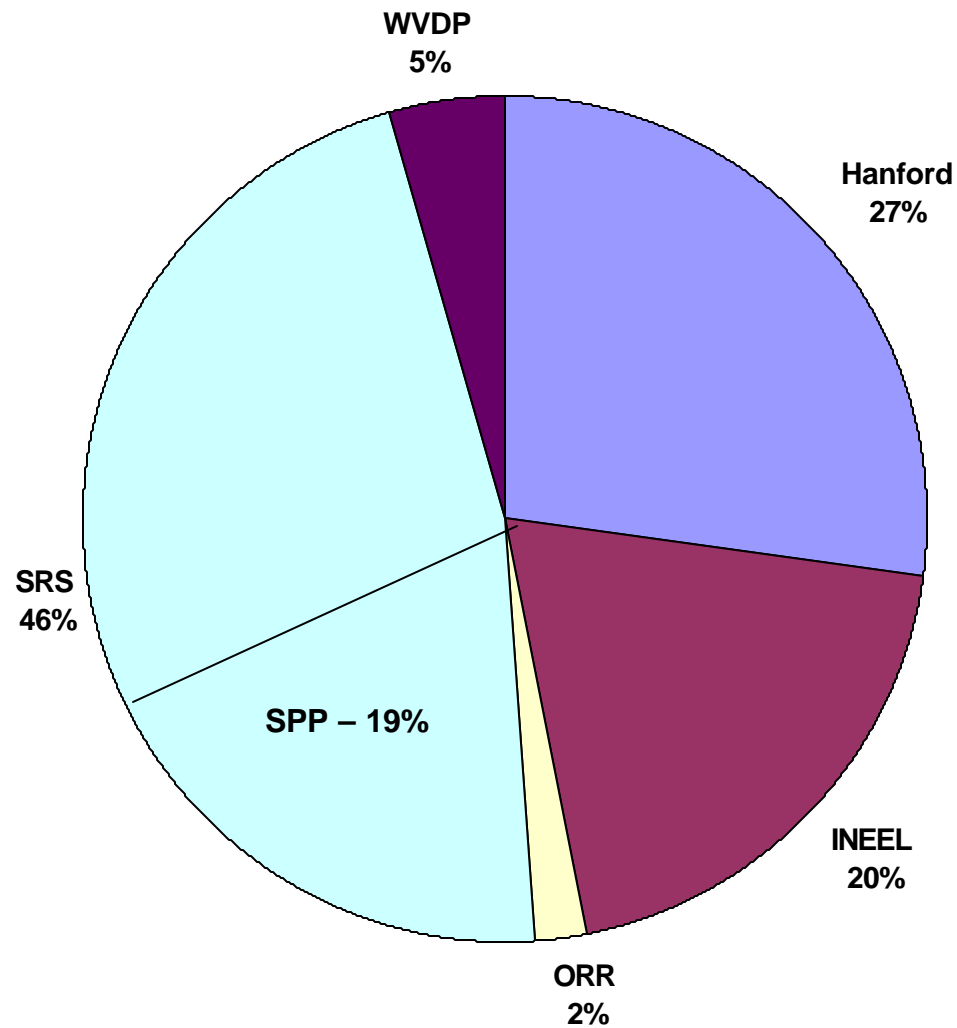
Integrated Priority List (continued)



TFA IPL#	MYTR #	Multi-Year Technical Response (MYTR) Title	Hanford Benefit \$K	FY02 \$K	FY02 \$K Sum	FY03 \$K	FY03 \$K Sum
56	B924	Tank Closure Criteria/Decision Support	1000	0	35782	0	36882
57	B331	Dry Solid Waste Retrieval		0	35782	0	36882
58	B960	Reduced Radionuclide Mobility	440	0	35782	0	36882
59	B339	Feed Slurry Erosion Testing	275	0	35782	0	36882
60	B749	Glass Monolith Surface Area	600	0	35782	0	36882
61	B333	Dry Materials Transfer and Blending		0	35782	0	36882
62	B751	Alternative HLW Waste Forms		0	35782	0	36882
63	B517	Organic Phase Removal	500	0	35782	0	36882
64	B204	Characterization Methods for Contaminated Large Equipment		0	35782	0	36882
65	B730	Acceptance Criteria for High Activity Waste		0	35782	0	36882
66	B958	Data and Tools for Performance Assessments		0	35782	0	36882

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FY 2002 Site Benefit (80% Funding Level)



TFA Strategic Tasks

- Strategic investments include:
 - Breakthrough opportunities (alternatives)
 - 2) Baseline technology gaps
- Typically focused on longer-term issues (>5yrs) with high risk and high cost
- Needs are identified through users, NRC reviews, SLC gap analysis, EMSP activities, and through technical experts
- Strategic investments are approved by TFA Management Team



Current TFA Strategic Tasks

\$1.3M (3.7%)



- Pre-Closure Interim Tank Maintenance (“Tank Lay up”)
- Selective Chemical Dissolution of Heels
- Retrieval from Potentially Leaking Tanks
- Removal of key Non-Rad elements (e.g., Cr)
- New Melter Technology - cold crucible melter
- Controlling Radionuclide Source Terms Important to Tank Closure (new)
- Closure of Ancillary Piping and Equipment (new - unfunded)

Relevant TFA Documents and Associated Links



- TFA Technical Highlights
<http://www.pnl.gov/tfa/highlight.stm>
- Tanks Technology Guide
<http://www.tanks.org>
- Key TFA Program Documents
<http://www.pnl.gov/tfa/documents.stm>
 - FY01 Site Needs Assessment
 - FY02-06 Multiyear Program – Final Draft
 - FY02 Technical Responses/Development Plans